

Predictive Analytics Solution for ATM Cash Transactions for National Development Bank PLC



[User Manual]

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Date: 20th September 2020

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Table of Content

1.0 GENERAL INFORMATION	1
1.1 System Overview	1
1.2 Organization of the Manual	1
2.0 APPLICATION SUMMARY	2
2.1 Application Configuration	2
2.2 User Access Levels	2
3.0 USER LOG IN PROCESS	3
3.1 User Registration	3
3.2 User Log In	3
4.0 USER OPERATIONAL GUIDELINES.....	5
4.1 Dash Board View for IT	5
4.2 Dash Board View for Branch Users.....	7
4.3 Dash Board View for Branch Users.....	8
4.4 Schedule View for IT and Branch Users.....	8
4.4.1 Update Buffer Section.....	8
4.4.2 Download Schedule Section.....	9
4.5 Cash Flows Section.....	10
4.5.1 Flow Summary Section.....	10
4.5.2 Withdrawal Summary.....	10
4.5.3 Withdrawals Section.....	10
4.5.4 Prediction Section.....	10
4.5.5 Replenishment Section.....	11
4.5.6 Withdrawals Vs Prediction Section.....	11
4.6 Insights on ATM Section.....	12
4.6.1 Analysis.....	12
4.6.2 Error Count.....	12
4.6.3 Down Time.....	12
4.7 Configuration Section.....	14
4.8 Region Section.....	14
4.9 Report Section.....	15

4.10	Admin Section.....	16
5.0	ERROR MANAGEMENT	17

List of Figures

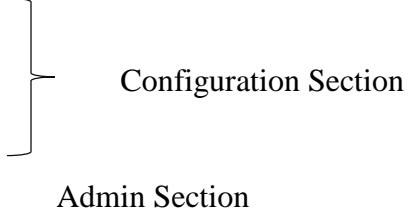
Figure 1: “atmosphere” Log -In Page	3
Figure 2.1: “atmosphere” Home Page for IT	4
Figure 2.2: “atmosphere” Home Page for Branch User.....	4
Figure 3: Check the Transaction Details of All ATMs.....	5
Figure 4: Cash Holding Vs Total Withdrawal Amount	5
Figure 5: Graph of Number of Withdrawals/Hour	6
Figure 6: ATMs with the Highest Value of Withdrawals Section.....	6
Figure 7: Cash Holding Pattern Graph.....	7
Figure 8: Day End Graph.....	7
Figure 9: Suggested Schedule Vs Replenishment Graph.....	8
Figure 10: ATMs Graph without Updated Buffer.....	9
Figure 11: ATMs Graph with Updated Buffer.....	9
Figure 12: Schedule Download Wizard.....	10
Figure 13: Total Cash Flow with Replenishments.....	11
Figure 14: Total Cash Flow with Schedule.....	11
Figure 15: Total Flow of Replenishment Graph.....	12
Figure 16: Error Count with the Occurrence Time Graph.....	13
Figure 17: Total Number of Errors and Total Duration of Error.....	13
Figure 18: Error Count Graph – IT User View.....	13
Figure 19: ATM Down Time Graph.....	14
Figure 20: Region Section-Default View of Super User.....	14
Figure 21: View of Report Section for Super User	15
Figure 22: Admin View for Super User.....	16

1.0 GENERAL INFORMATION

This section explains in general terms of the system, functionality and purpose for which it has been designed.

1.1 System Overview

“atmosphere” is a web-based application, which allows National Development Bank to collect information about its island-wide ATMs. Apart from ATM prediction and analytics the application further provides below facilities for the user in IT department/Super User, under the section of “Configuration” and “Admin”:

- Adding/Updating ATM details.
 - Adding/Updating service provider details.
 - Change holidays according to bank calendar.
 - Add/remove/change application user/groups
- 
- Configuration Section
- Admin Section

1.2 Sections of the Manual

The user manual consists of four sections:

- General Information
This section describes general terms in the system and the purpose for which it is projected.
- Application Summary
This section provides a general overview of the application. The summary outlines the uses of the application, user access levels and application’s behavior in case of any contingencies.
- User logging process
This explains how to get started with the application and log in to via the device.
- User Operational Guidelines
This section facilitates user with all details of the functions of the application and the way the processed information is presented, the formats and how the user gain access to the said information.

2.0 APPLICATION SUMMARY

A general overview of the application.

2.1 Application Configuration

User can access the application via a web browser by typing “ndbatm360:8000” on the address bar and there **is no recommended** browser. The user can use Microsoft Edge, Internet Explorer or Google Chrome as their browser. Once the user types the correct URL, clicks on the relevant option and provides the correct domain credentials (domain user name and password), the user will be able to gain access to the application directly.

2.2 User Access Levels

There are three main user access levels.

- Super user who can access the main administrative functionalities and all ATM details.
This super user will be someone from NDB IT department.
- Regional users who can access the ATM details of their respective region.
- Branch users who can access the ATM details of their respective branch.

3.0 USER LOG IN PROCESS

3.1 User Registration

The authorized users who are entitled to access the system will be selected by the National Development Bank and will be added to the “AP-ATM360-User_DL” user group in AD. By using the correct and relevant domain credentials (domain user name and password) user can log in to the application.

3.2 User Log In

User can view the “atmosphere” log in page as in Figure 1.

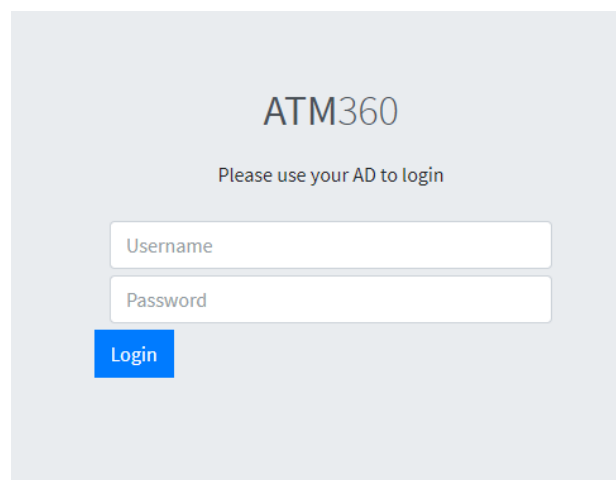
The image shows a login page for ATM360. At the top, the text "ATM360" is displayed in a large, dark blue font. Below it, a smaller line of text says "Please use your AD to login". There are two input fields: the first is labeled "Username" and the second is labeled "Password". Below these fields is a blue button with the word "Login" in white text. The entire form is centered on a light gray background.

Figure 1: “atmosphere” Log -In Page

Once the user provides the domain user name and password it will be directed to the home page which is shown in Figure 2. After clicking on the “Login” button, the user will be able to see the main navigation on the right side of the home page.

- Super User – Navigation section with six sub sections (Dash Board, Cash Holding, Schedule, Cash Flows, Insights on ATM, Configurations) (Figure 2.1).
- Branch User – Navigation section with five sub sections except “Configuration” section (Figure 2.2).

The branch user will only have the right to access the details of their respective branch ATM only.

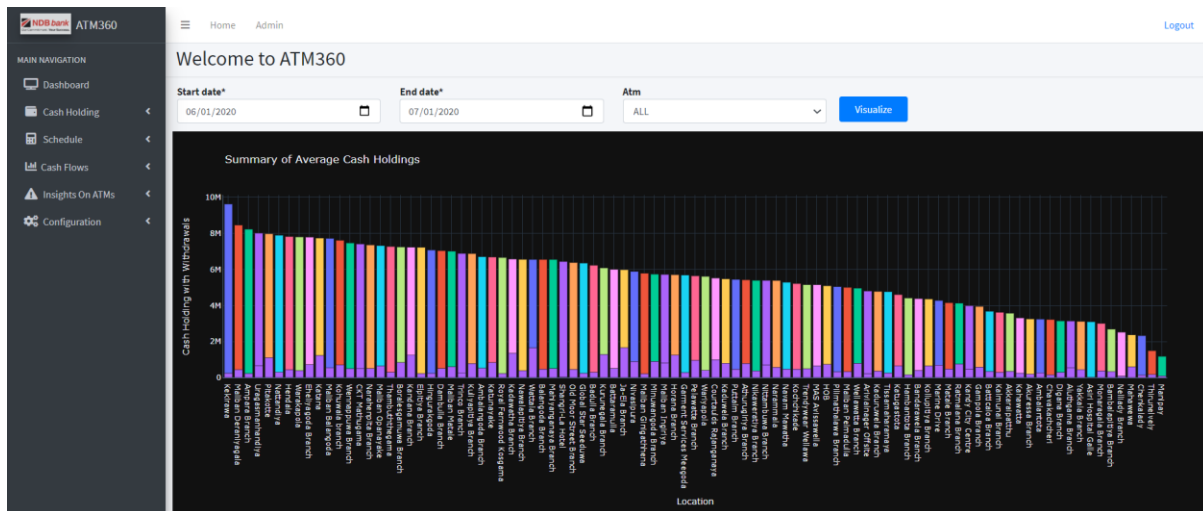


Figure 2.1: “atmosphere” Home Page for IT/Super User

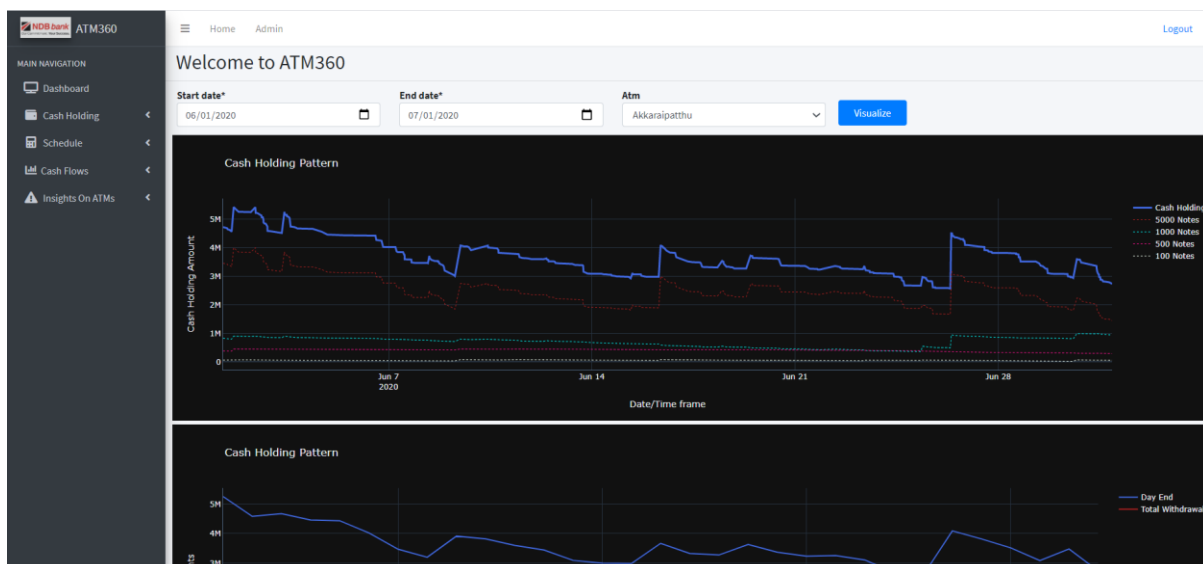


Figure 2.2: “atmosphere” Home Page for Branch User

4.0 USER OPERATIONAL GUIDELINES

4.1 Dash Board View for Super User

In dash board section, super user can view the summary of the average cash holding, cash holding pattern, number of withdrawals/per hour and ATMs with the highest value of withdrawals graphs for the selected ATM/all ATMs and for the selected date range.

For an example, if user wants to check the transaction details of all ATMs from 2020-06-01 to 2020-07-01 time period, the user should follow the below mentioned step:

1. Click on “Visualize” button after putting the start date as 2020-06-01 and end date as 2020-07-01 (Figure 3).

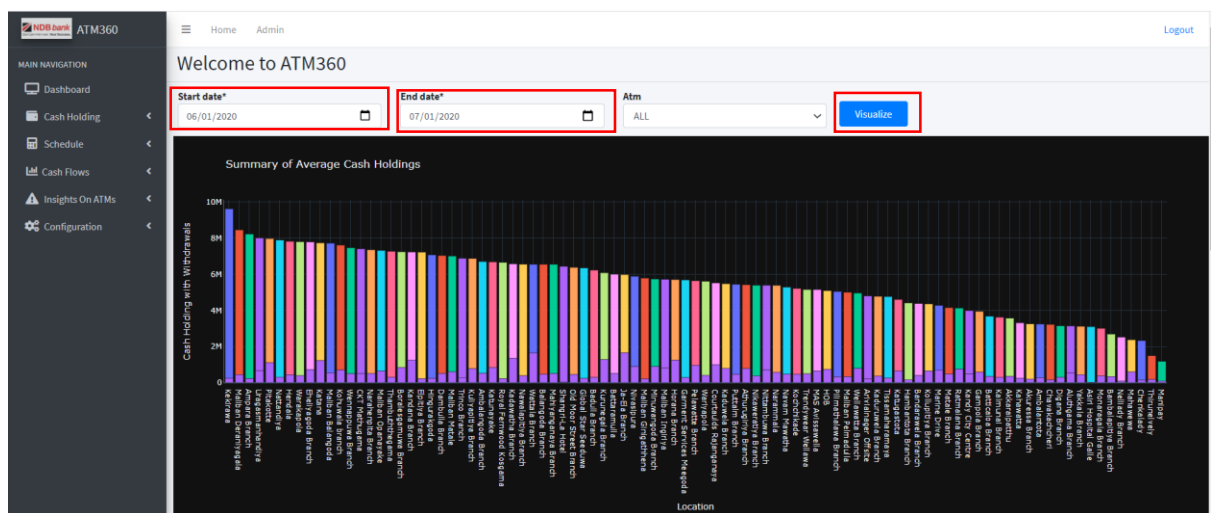


Figure 3: Check the Transaction Details of all ATM

2. **Cash holding vs total withdrawal amount** for the selected period represents in cash holding pattern graph (Figure 4)

Blue Color – Cash holding amount

Red Color- Total withdrawals

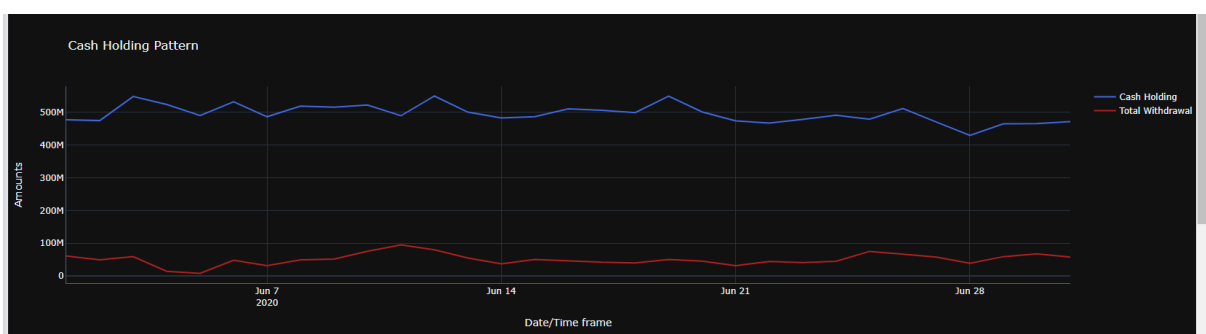


Figure 4: Cash Holding Vs Total Withdrawal Amount of all ATMs

3. In **number of withdrawals/per hour graph** for the selected period, represents the highest amount which is denoted by yellow color and the lowest amount which is denoted by blue color. Once user keeps the mouse pointer on top of each dot, it gives the details of the particular point. This graph illustrates the total withdrawals for selected ATM, if user selects the “All” option in “Atm” dropdown it gives results of all ATMs (Figure 5).

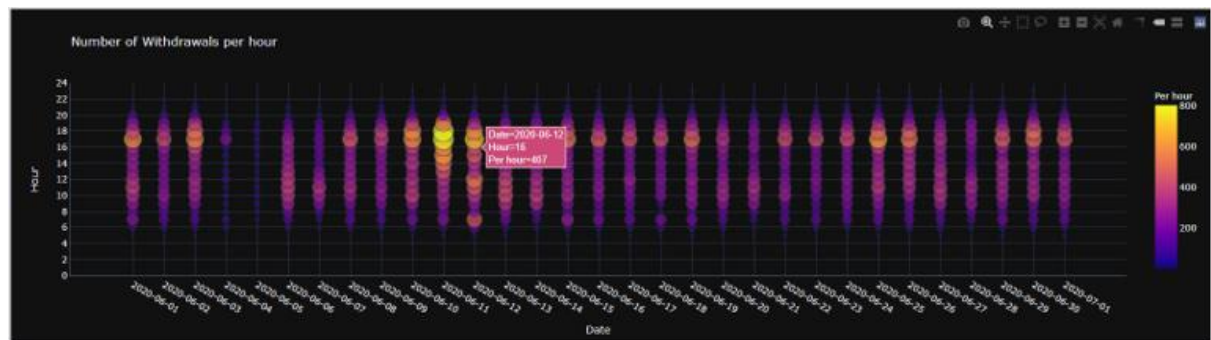


Figure 5: Graph of Number of Withdrawals/Hour

4. The font size of ATM name changes according to the number of withdrawals for the selected date range, in “**ATMs with highest value of withdrawals**” section. The ATM which has **the highest number of withdrawals** from 2020-06-01 to 2020-07-01 period is MAS Avissawella (Figure 6).



Figure 6: ATMs with the Highest Value of Withdrawals Section

4.2 Dash Board View for Branch Users

In dash board section, branch user can view the cash holding pattern, the day end pattern of respective branch, suggested schedule vs replenishment, number of withdrawals/per hour for the selected date range.

For an example, if user wants to check the transaction details of the ATM from 2020-06-01 to 2020-07-01 time period, put the start date as 2020-06-01 and end date as 2020-07-01, then click the “Visualize” button.

The rendered graphs visualize following details:

1 **Cash holding pattern graph** illustrates the details of cash holding amount and its cash denomination (Only for their respective branch) (Figure 7).

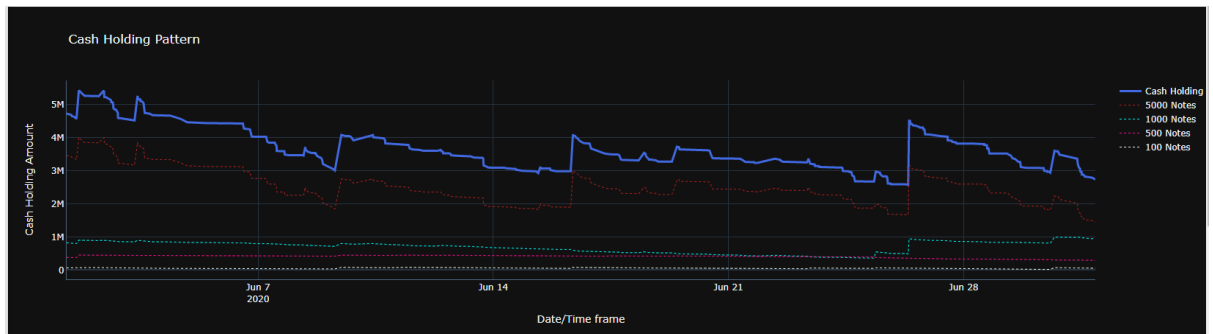


Figure 7: Cash Holding Pattern Graph

2 **Day end pattern graph** provides the comparison between day end values (Remaining amount in ATM at EOD) and total withdrawals for the selected period (Only for their respective branch) (Figure 8).

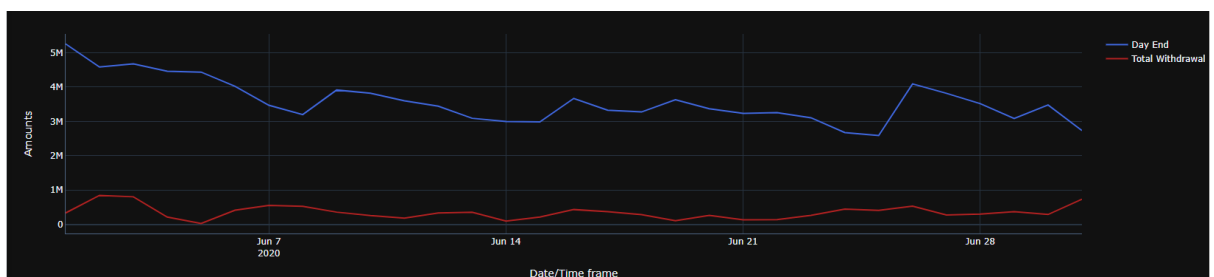


Figure 8: Day End Graph

3 **Suggested schedule Vs Replenishment graph** illustrates the details of predicted schedule and actual replenishments. Blue color bar reflects the replenished amount. User can compare whether replenishment happens in scheduled date or not and replenished amount is correct as predicted (Figure 9).

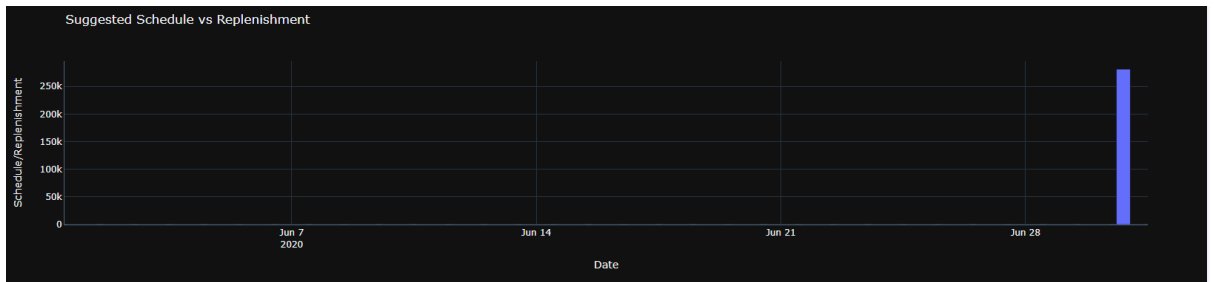


Figure 9: Suggested Schedule Vs Replenishment Graph

According to the Figure 9, There was a replenishment on 2020-07-01 and the amount is 228.1K. User can compare this replenishment with the schedule.

4 Number of withdrawals/hour graph has been discussed under section 4.1.

4.3 Cash Holding Pattern View for Super User and Branch Users

This has been discussed under section 4.2 **Cash holding pattern graph.**

User can navigate to this graph by clicking “Cash Holding” button and then “Holding Pattern” button in main navigation.

Super user can view the cash holding pattern of all ATMs for selected period. And Super user can select any ATM from the “ATM” drop down list as well.

Branch user can view **Cash Holding Pattern** of their respective branch.

Both users can download cash holding report in excel, pdf, csv or json format.

4.4 Schedule View for Super User and Branch Users

Users can navigate to “Update Buffer”, “Download Schedule” and “Validation” sections by clicking “Schedule” button in main navigation.

4.4.1 Update Buffer Section

Super users have access to view “Schedule Vs Withdrawals” graph for all ATMs and branch users can view their respective branch’s ATM graph.

When super user puts the start date and end date and selects the ATM, graph in Figure 10 can be viewed. Graph with updated data can be seen once he/she updates the buffer by clicking “Update Buffer” (Figure 11). And message also pops up on top of the wizard stating that buffer is updated.

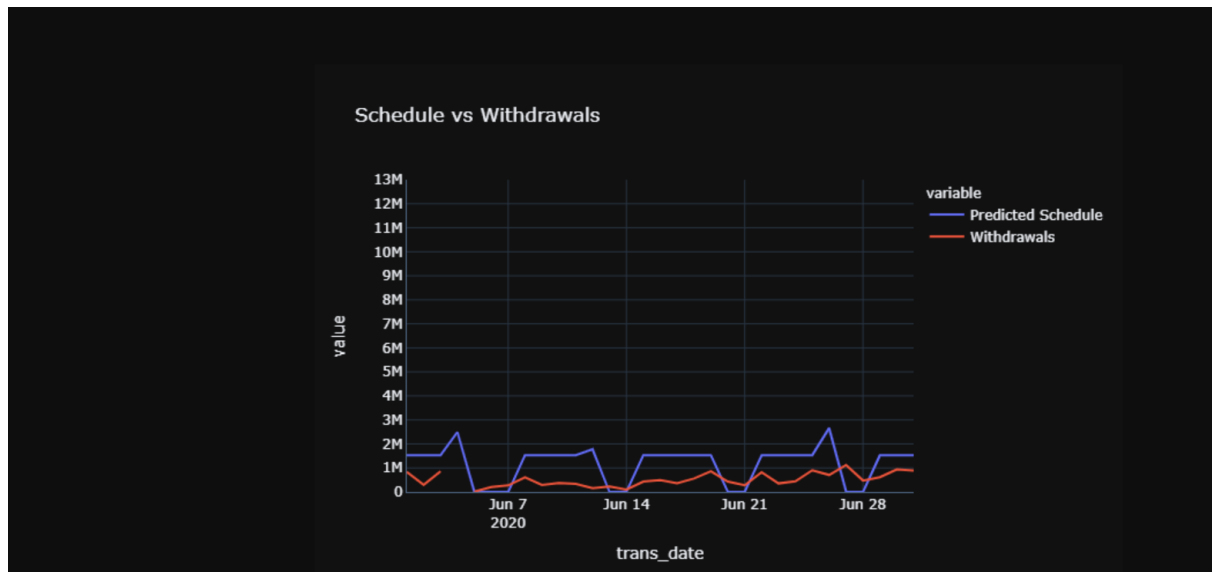


Figure 10: ATMs Graph without Updated Buffer

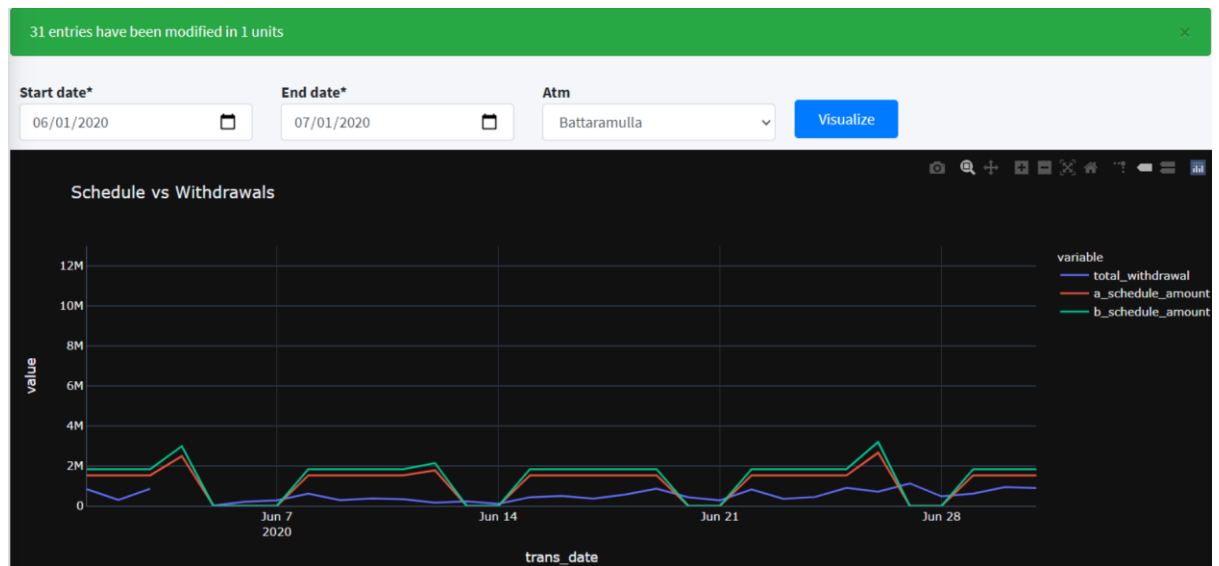


Figure 11: ATMs Graph with Updated Buffer

The difference in branch user's view and super user's view is that it is providing their respective ATM view only for branch users.

4.4.2 Download Schedule Section

Super user can download the schedule for the selected time period and selected ATM. Branch user can select schedule for their respective ATM (Figure 12).

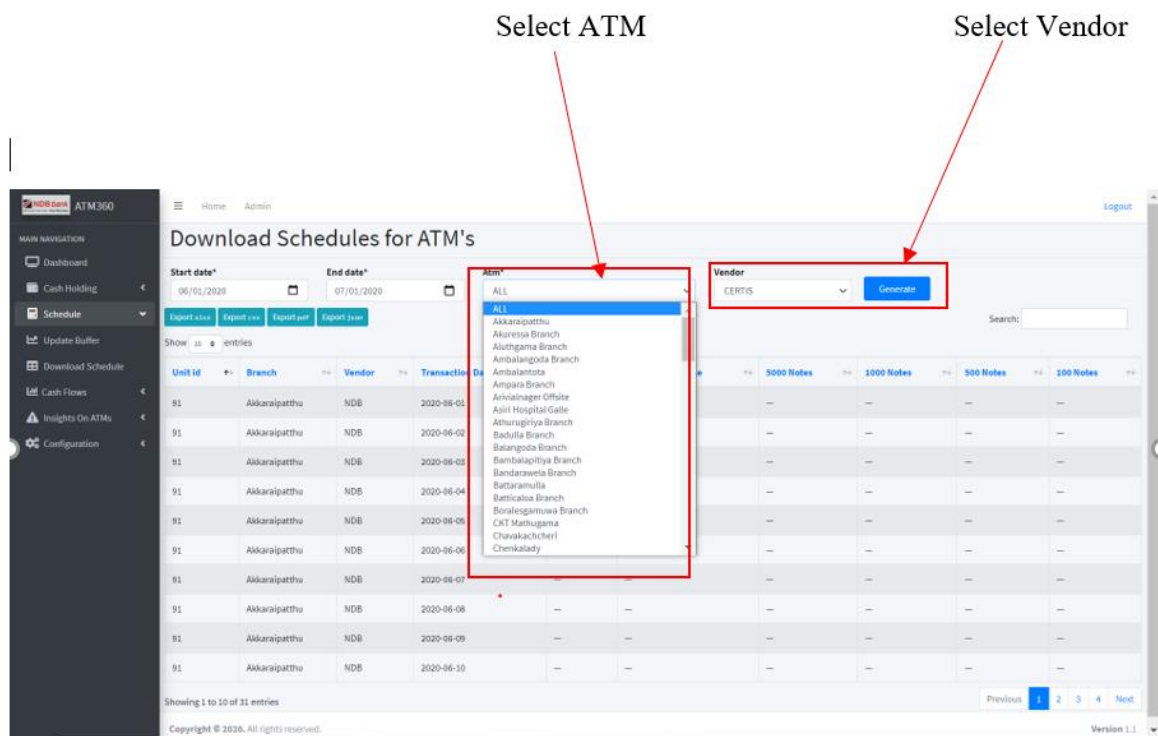


Figure 12: Schedule Download Wizard

4.5 Cash Flows Section

4.5.1 Flow Summary Section

User can select the date range and if super user can select any ATM. The transaction summary including withdrawals, replenishments (Figure 13), schedule (Figure 14) and predicted withdrawal amounts can be viewed for the selected period and selected ATM.

4.5.2 Withdrawal Summary

User can view the total withdrawal amount for the selected time period using this graph. If user is the super user, he/she can view the withdrawal amount of all ATMs. Branch user can view the total withdrawal amount of selected period for their respective branch.

4.5.3 Withdrawals Section

Withdrawals section reflects the total withdrawals of particular ATM for the selected period.

4.5.4 Prediction Section

Prediction section reflects the total predicted withdrawals of particular ATM for the selected period.

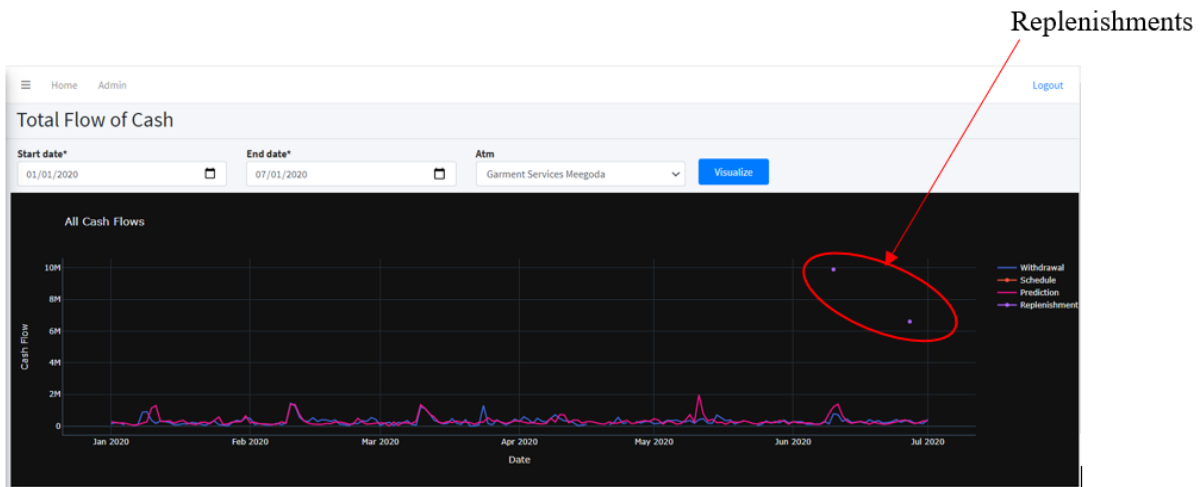


Figure 13: Total Cash Flow with Replenishments

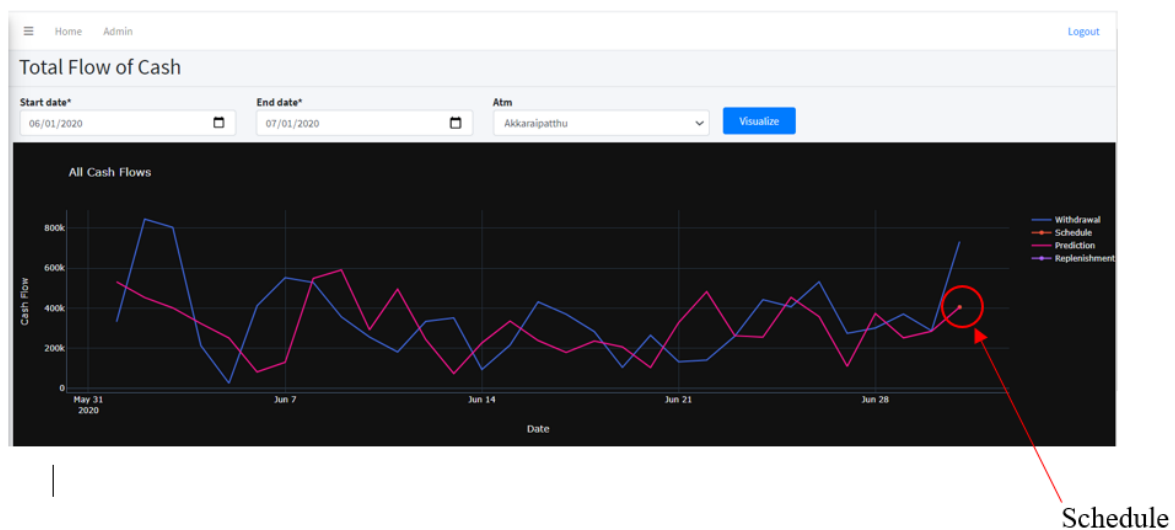


Figure 14: Total Cash Flow with Schedule

4.5.5 Replenishment Section

User can view the date of replenishment and replenishment amount for the particular ATM and selected date range (Figure 15).

4.5.6 Withdrawals Vs Prediction Section

User can compare the actual total withdrawal amount and predicted total withdrawal amount for the selected time period and selected ATM, if the user is super user.

- All the above mentioned graphs has table view except “Withdrawals Vs Prediction” section and user can download this as a report either in excel, pdf, json or csv formats.

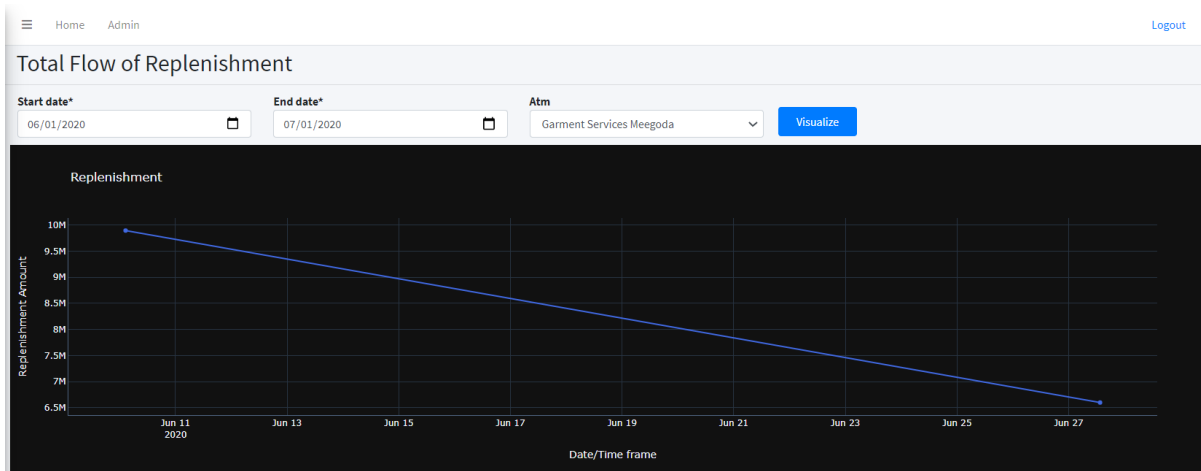


Figure 15: Total flow of Replenishment Graph

4.6 Insights on ATM Section

4.6.1 Analysis

Once user selects date range and ATM (if super user), three charts can be viewed in this section.

1. Error count with the occurrence time – include error name, date, time and error count (Figure 16)
2. Total number of errors occurred- No of errors in each error type (Figure 17)
3. Total duration of the error- Total duration of errors in each error type (Figure 17)

4.6.2 Error Count

Super user can view no of errors in each error type occur in each ATM. Branch user can view graph only for their branch ATM. Detailed report can also be viewed (Figure 18).

4.6.3 Down Time

ATM out of service time duration for the selected date range and selected ATM (if super user) can be illustrated in this graph. Branch user can view the graph of their respective ATM (Figure 19).



Figure 16: Error Count with the Occurrence Time Graph

- User can recognize the error type by their respective color

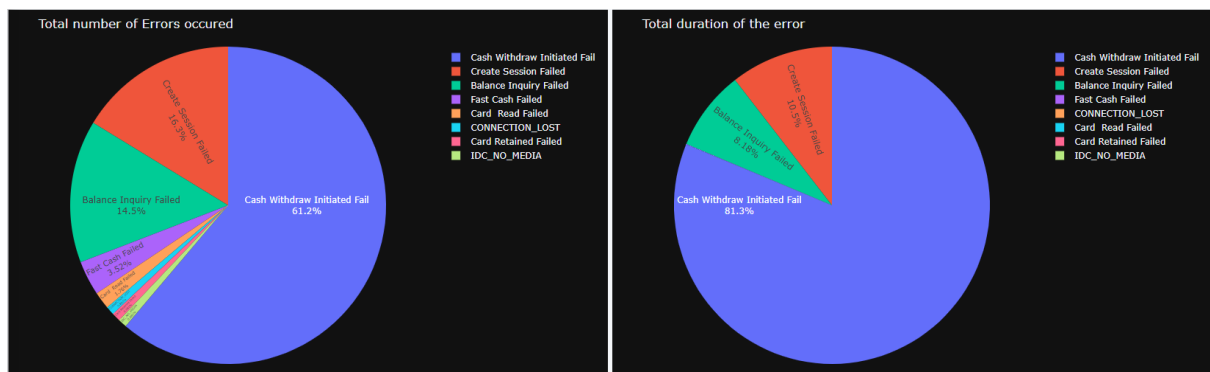


Figure 17: Total Number of Errors and Total Duration of Error

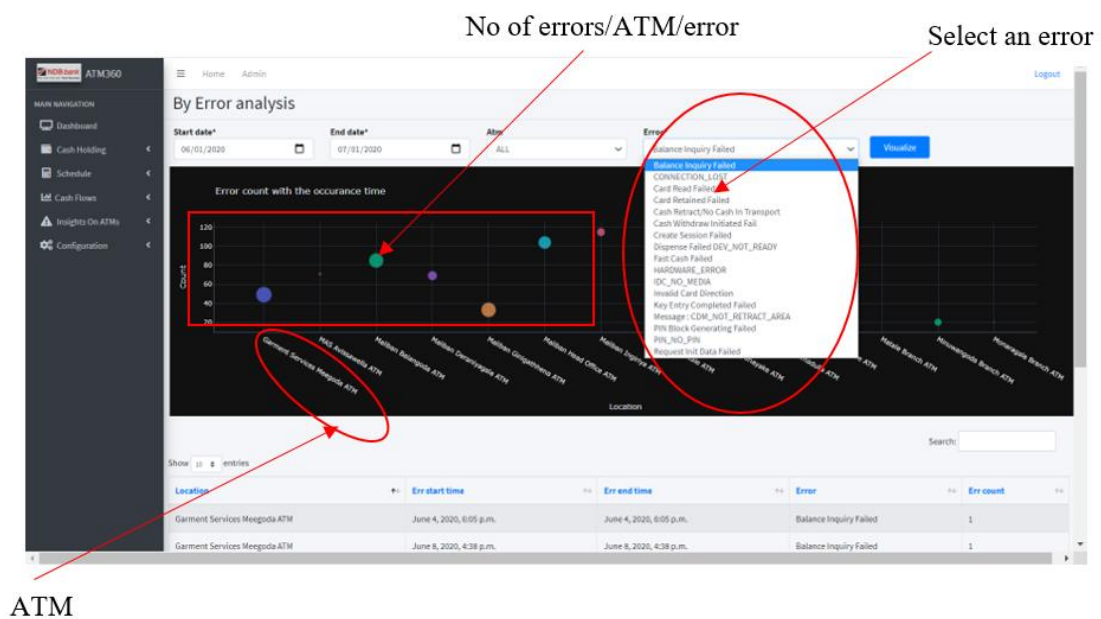


Figure 18: Error Count Graph – Super User View

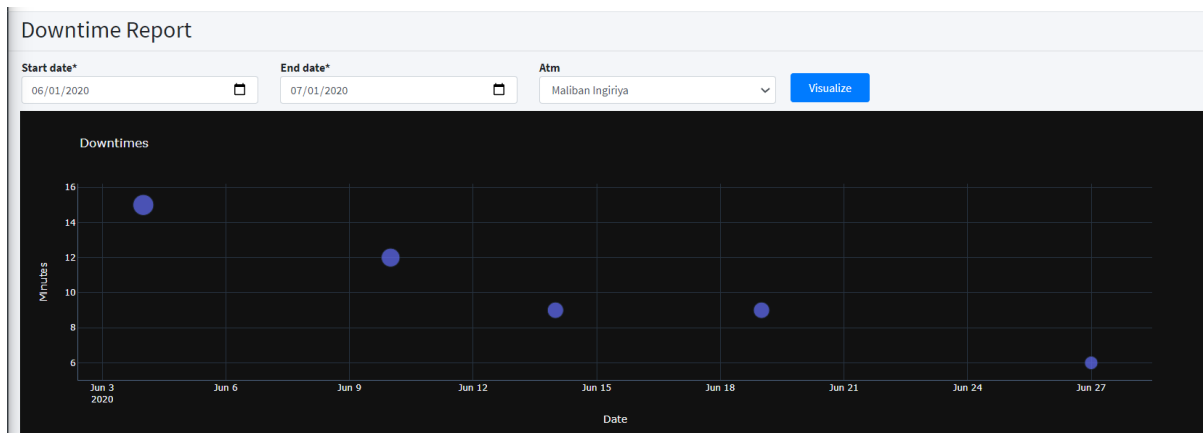


Figure 19: ATM Down Time Graph

4.7 Configuration Section

This section only accessible to super user. Super user can add/edit ATM details, add/edit service provider details or view/edit calendar.

4.8 Region Section

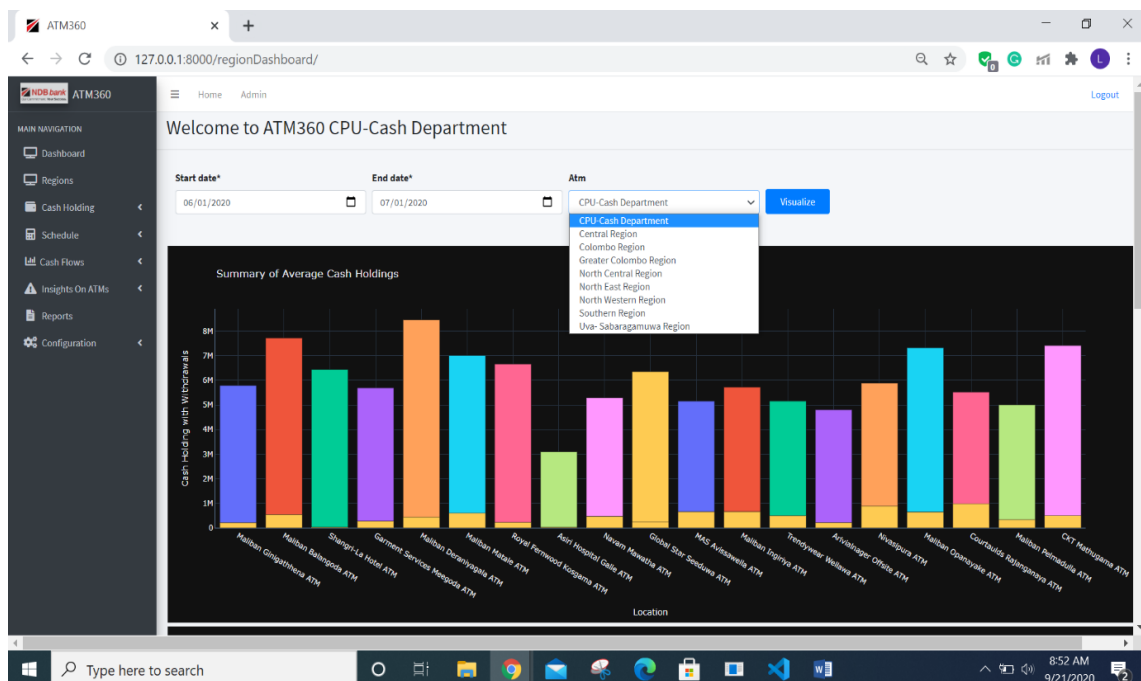


Figure 20: Region Section-Default View of Super User

Once user navigates to the “Region” section, the default view of “Region section” can be viewed. (Figure 20).

There are three main graphs in this section.

1. “Summary of Average Cash Holding” graph for the selected region and selected period.
2. “Cash Holding Pattern” graph for the selected region and selected period. User can examine the pattern of cash holding and total withdrawals for the selected time period using this graph.
3. “Number of withdrawals Per Hour” graph visualizes the number of withdrawals occur within each and every hour for the selected time period and selected region.

If you represent CPU-Cash department, “CPU-Cash Department” option under the “ATM” section will be selected automatically. And if you represent particular region, your respective region will be selected under the “ATM” section.

For an example, if you represent “North East Region”, you can get the details of Manipay, Batticaloa, Kalmunai, Nelliady, Chavakachcheri and Chenkalady ATMs.

4.9 Report Section

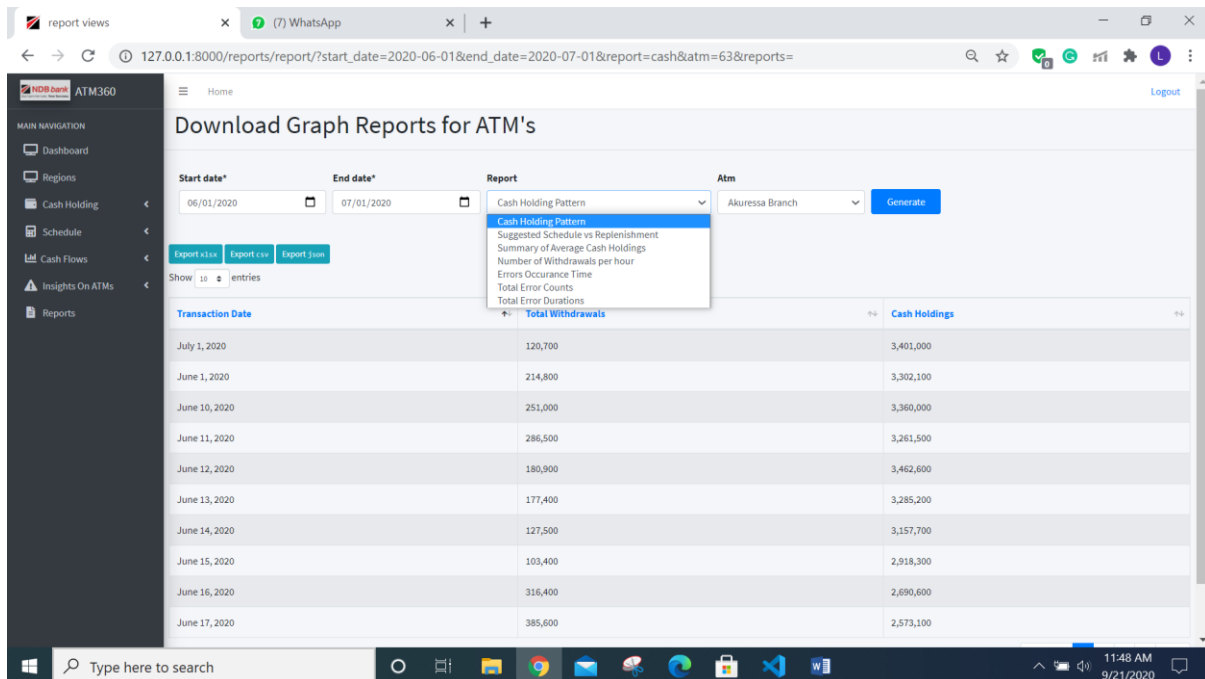


Figure 21: View of Report Section for Super User

Under “Report” section, user can view or download below mentioned reports for a selected time period. Report can be download as excel, csv or json formats.

1. Cash Holding Pattern Report
2. Suggested Schedule Vs Replenishment Report
3. Summary of Average Cash Holding Report
4. Number of Withdrawals per Hour Report
5. Error Occurrence Time Report
6. Total Error Count Report
7. Total Error Duration Report

4.10 Admin Section

Super User can add new system user or can delete existing user via this section. To do this navigate to “Users” sub section in “LdapAuth” section.

Click “Add User” button to add new user to the system.

When deleting the user select the particular user and click the “Delete Selected Users” section under “Action” dropdown list.

Add User Button

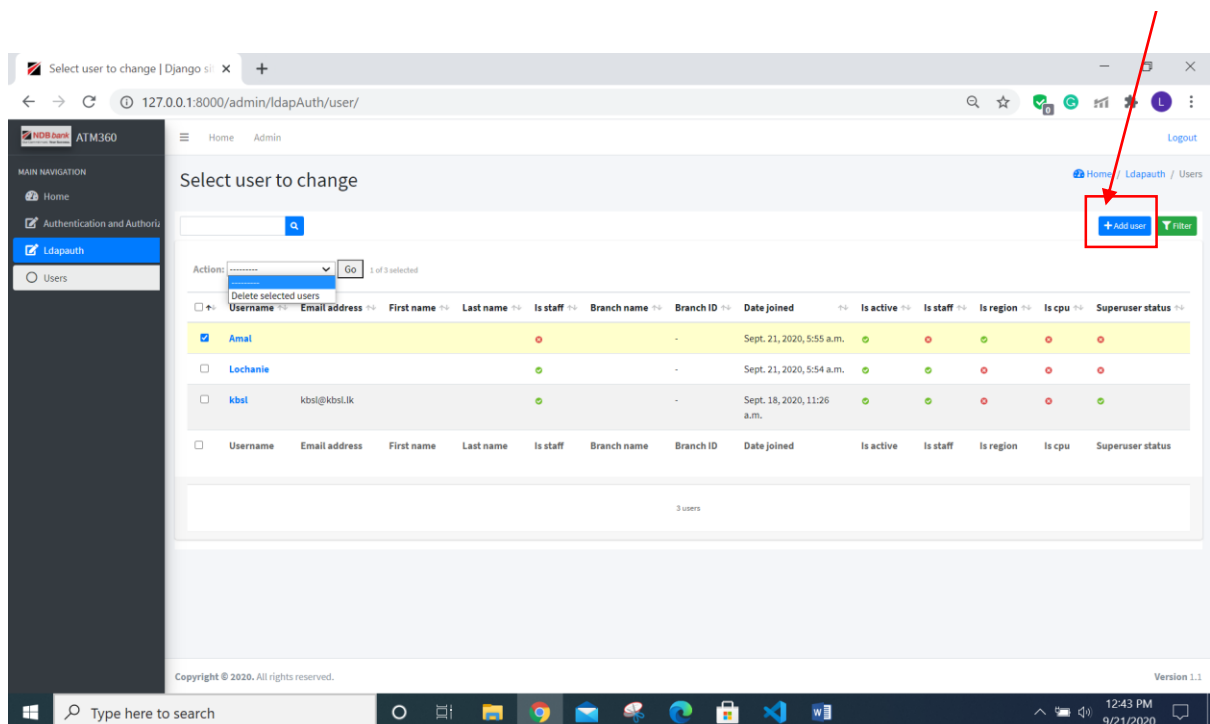


Figure 22: Admin View for Super User

5.0 ERROR MANAGEMENT

Error/warning messages will pop up in below scenarios:

1. Once user put incorrect user name/password
2. When end date is less than start date
3. Once super user adds same ATM for two unit IDs
4. Once same journal ID adds for two ATMs.